

### **REMARKS**

Claims 1-18 are pending in the application. The Examiner's comments together with the cited references have been carefully studied. Favorable reconsideration in view of the following remarks is respectfully requested.

Claims 1-13 and 17-18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Liu (US 6,548,149) in view of Graziano (Canadian Journal of Chemistry 80(4) p. 401-412). According to the Examiner, while acknowledging Liu fails to mention non-hydrolyzable substituents in silicon alkoxide compounds, Graziano plots of the standard Gibbs energy change associated with solvation of aliphatic hydrocarbons, and such plots shows a negative slope for smaller alkanes and a positive slope for higher alkanes which means the solubility of non-polar solutes (materials with hydrocarbon content) increases with the size of the non polar solute (materials with higher hydrocarbon content) in solvent except water (abstract); in a medium with more non-hydrolyzable [R group in  $RZ(OR')_3$  (where Z = Si or Al)] substituents R would be expected to have a greater affinity for solvent-based inks; and it accordingly would have been obvious to a person of ordinary skill in the art at the time of the invention to have used hydrolyzable and non-hydrolyzable substituents or blend to balance the hydrocarbon character and crosslink density to ultimately control the absorption rate of the receiving layer. The rejection is respectfully traversed.

The present claims require use of a hybrid aluminosilicate polymer obtained by a specified preparation method by either treating a mixed aluminum and silicon alkoxide of which the silicon has both hydrolyzable substituents and a non-hydrolyzable substituent, or a mixed aluminum and silicon precursor resulting from the hydrolysis of a mixture of aluminum compounds and silicon compounds only having hydrolyzable substituents and silicon compounds having a non-hydrolyzable substituent, with an aqueous alkali, in the presence of silanol groups. While acknowledging Liu fails to teach such features, the Examiner now sites Graziano for its teachings with regard to plots of the standard Gibbs energy change associated with solvation of aliphatic hydrocarbons, and apparently alleges that this somehow teaches or suggests modification of Liu in a manner that would result in the present claimed invention. The Examiner provides no support based on the actual teachings

of such references for such allegation, however, and certainly no support for such allegation within the specific construct of the present claimed invention directed towards preparation of specific aluminosilicate polymers by a specific preparation method.

Rather than actually teach or suggest any modification of Liu which would result in the present claimed invention, Graziano is directed toward the study of the solubility of non-polar solutes, such as noble gases and hydrocarbons, in water compared to common organic solvents, and based on such study concludes "that the solubility of nonpolar solutes in different solvents is always determined by the balance between the work spent to create the cavity and the work gained to turn on the solute-solvent interactions." Such conclusion is thus based on the relative size of the solute, not on the relative hydrocarbon character of the solute as apparently alleged by the Examiner. Further, the Examiner appears to interpret Graziano's teachings as suggesting that increasing the hydrocarbon character of a hybrid aluminosilicate polymer by including a non-hydrolyzable substituent will cause the inkjet recording medium to have a greater affinity for solvent-based inks. The teachings of hydrocarbon solutes in Graziano, however, has nothing to do with non-hydrolyzable substituents, nothing to do with aluminosilicate polymers, and nothing to do with ink jet recording mediums (especially those designed for use with conventional aqueous based inks as employed in the examples of Liu). Further, Liu is not trying to form hydrocarbon solutes in solvent based inks, and one skilled in the art of aluminosilicate polymers accordingly would not look to Graziano for any particular modification of Liu. Even if one were to combine such teachings (which Applicants maintain would not be reasonably suggested for any reason to begin with), the result would in any event appear to be the selection of a particular hydrocarbon solute, i.e., a dissolved component, rather than a modification of the aluminosilicate polymer of Liu to include a non-hydrolyzable substituent resulting from use of a silicon compound having such non-hydrolyzable substituent in the formation thereof.

Accordingly, it is clear that the proposed combination of references would not have been suggested by the actual teachings of the cited references, but is rather only set forth by the Examiner based on the impermissible use of hindsight

reconstruction based on Applicant's own teachings, which is clearly improper with respect to establishing any *prima facie* case of obviousness. Absent an actual specific teaching or relevant suggestion in the prior art to do so, the Examiner's mere allegation as to obviousness to modify the aluminosilicates of Liu based on the clearly irrelevant teaching of Graziano with respect to impact of size of hydrocarbon solutes on solubility in different solvents does not establish a *prima facie* case of obviousness with respect to the present claimed invention. The rejection further fails to address the previous acknowledgement that aluminosilicate polymers are complex products, such that it accordingly clearly would not be a simple or "obvious" matter to modify the prior art processes to provide new distinct materials with distinct properties in accordance with the present claimed invention. Reconsideration of this rejection is accordingly respectfully strongly urged.

Claims 14-16 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Totani (US 2001/0009712). According to the Examiner, Liu teaches the recording element that contains silicon alkoxide compounds but fails to mention the specific compounds claimed by the applicant; Totani discloses silicon alkoxide compounds having a non-hydrolyzable substituent commonly in receiving layer of ink jet recording mediums that includes methyltrimethoxysilane (alkyl group 1 carbon) and vinyltriethoxysilane (paragraph 46); and it would have been obvious to a person of ordinary skill in the art at the time of the invention to have selected from known silicon alkoxide compounds having a nonhydrolyzable substituents such as those disclosed by Totani that read on the applicants' claimed compounds, absent unexpected results. The rejection is respectfully traversed.

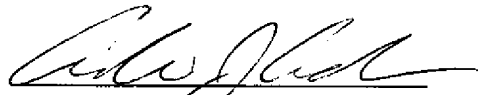
Totani teaches the use of specific undercoat layers on polymeric films or sheets to improve the overall water-resistance of inkjet recording sheets coated over the undercoat layers. As an example of an undercoat layer, cross-linkable polymeric binders are preferred, and as a cross-linking agent there is a long list of compounds which includes alkoxysilane compounds. Rather than be directed towards the use of certain alkoxysilanes as a polymer cross-linking agent in an undercoat layer as might be suggested by Totani, the present invention is directed towards an inkjet

recording element comprising an ink-receiving layer comprising a hybrid aluminosilicate polymer obtainable by a specified preparation method employing silicon alkoxide having a non-hydrolyzable substituent. As previously explained, due to the non-hydrolyzable nature of such substituent, it remains in the formed aluminosilicate polymer, and is not employed as a separate polymer binder crosslinking agent as might be suggested by Totani. Given the context of the problem being solved by Totani and the use of alkoxysilane compounds in general (no distinction is made by Totani to use silanols with both hydrolyzable and non-hydrolyzable substituents or a blend) as cross-linking agents for common polymeric binders, one of ordinary skill in the art would not have contemplated combining the teachings of Totani with Liu to obtain hybrid aluminosilicate polymers as employed in the present invention. Use of such a hybrid aluminosilicate polymer obtained from silicon compounds having non-hydrolyzable substituents is clearly not taught or suggested by Liu et al. in view of Totani, as Liu only disclose use of fully alkoxyated (i.e., all hydrolyzable groups) silicon compounds in the preparation of the aluminosilicates thereof (see, e.g., use of ethyl orthosilicate at col. 23, line 15 of Liu et al), and as Totani only proposes use of alkoxysilane compounds as cross-linking agents for undercoat layer polymer binders. The claimed hybrid aluminosilicate polymers themselves are clearly distinct, and Liu et al combined with Totani does not suggest the use of a hybrid aluminosilicate polymer in accordance with the present invention. Absent a specific teaching in the prior art to do so, the Examiner's mere speculation clearly does not establish a *prima facie* case of obviousness with respect to the present claimed invention. Reconsideration of this rejection is accordingly respectfully strongly urged.

In view of the foregoing remarks, the claims are now deemed allowable and such favorable action is courteously solicited.

Should the Examiner consider that additional amendments are necessary to place the application in condition for allowance, the favor is requested of a telephone call to the undersigned counsel for the purpose of discussing such amendments.

Respectfully submitted,



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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.